The 1997 Missouri School District Computing Census

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District Level Reports Now Available

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The 1997 Missouri School District Computing Census Summary Results

Back to 1997 Census

INTRODUCTION

Educational computing and instructional applications of the Internet can be powerful tools to help our students learn. The impact of the Internet on instructional practice and learning requires, among other things, reliable access to Internet connected computers and the availability of technical and educational support. The development of educational networks to support such efforts is complex and costly. Therefore, reliable information about the use of computing and the Internet in public schools is needed to help make informed decisions about future educational investments and to monitor impacts.

To develop such information the Missouri Department of Elementary and Secondary Education, Division of School Services, is supporting an on-going evaluation of the impact of instructional computing. The development of the 1997 Missouri Census of Instructional Computing is a part of that effort. The census was conducted by the Office of Social and Economic Data Analysis (OSEDA) in cooperation with Department staff and the Missouri Research and Education Network (MOREnet). Data collection among Missouri's elementary and secondary schools occurred between February and July of this year. This initial report summarizes the results. Several more detailed reports based on the census data will be forthcoming. For additional information about the 1997 Census of Instructional Computing see the Department of Elementary and Secondary Education web site at http://dese.mo.gov.

OVERVIEW OF THE CENSUS

A "census" methodology was used to gather information from all Missouri School Districts and Schools. Often survey projects draw inferences about a population by measuring the characteristics of a relatively small, usually random, sample of the larger population. However, Missouri School Districts have very diverse characteristics and also have widely different levels of technology. To establish definitive baseline information every district and every school was enumerated and data sought from all of them--a census. Extremely high response rates were achieved and the resulting information is the most definitive available.

The Missouri Computing Census includes three questionnaires:

The District Computing Census assesses the overall extent of Internet networking at each Missouri School District. Completed by district level technology specialists, ninety-six (96) percent of Missouri Districts (504 out of 525) are included in the census.

The Building Computing Census assesses the level of Internet connectivity for each building. Completed by building level staff with technology responsibilities, ninety-seven (97) percent of Missouri Schools (2,132 out of 2200) are included in the census.

The Building Instruction and Computing Census assesses the extent to which

students and teachers have access to the Internet, the extent to which they use it for instruction and the extent to which they think it benefits instruction in their school. Completed by building level instructional leaders, 85 percent of Missouri Schools (1,871 out of 2,200) are included in the census.

Summary Results

The results of each of the three census questionnaires are summarized below including associated tables and charts. A section entitled "notes" includes important details about how the census was conducted and certain definitions used. An Appendix includes copies of the questionnaires and a brief comparative analysis of the schools and districts included in the census.

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Summary Results - District Computing Census

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Computing Support Staff

- About one-third of all Missouri School Districts have little or no staff specifically assigned to support instructional computing or telecommunications; most districts have one full time staff member assigned and less than a third have two or more staff.
- The availability of specialized staff for technology is related to the relative size of the districts. Because most metropolitan districts have large enrollments, specialized staff are more prevalent among metropolitan districts as compared to non-metropolitan districts.

Wide Area Networks

- Wide Area Networks (WANS) connecting multiple sites are supported in 30 percent of Missouri Districts.
- Larger, metropolitan districts have about twice as many WANS (46 percent) as non-metropolitan districts (24 percent).

Local Area Networks

- Almost 90 percent of all Missouri School District have at least one Local Area Network (LAN). Nearly, 50 percent have two or more. The number of LANs is related to size and metropolitan status.

Network Operating Systems

- Novell is, overwhelmingly, the network operating system most used by Missouri School Districts.

Technology Plans

- Almost all Missouri School Districts (94 percent) report having a technology plan.

Acceptable Use Policies

- Over two-thirds of Missouri School Districts have adopted "Acceptable Use Policies" to help guide how faculty and students should use the Internet.

Web Pages

- Nearly 30 percent of all Missouri School Districts have developed a district web page.
- Metropolitan districts have almost twice as many web pages (46 percent) as non-metropolitan districts (24 percent).

District Supported E-mail and Dial-Up Internet Accounts

- About half of all teachers and administrators have E-mail and dial-up Internet accounts supported by their districts.
- Larger, metropolitan districts are more likely to support E-mail and dial-up Internet accounts than smaller, non-metropolitan districts.

Major Areas Reported to be in the Greatest Need of Additional Instructional Support

- Help desk support for teachers and students
- Setting up LANs
- Technical training and Instructional training using technology

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The 1997 Missouri School District Computing Census
Summary Results - Building Computing Census

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Total Computers and Internet Connectivity

- There are nearly 140,000 computers in Missouri Public Schools.
- About 56 percent of those computers (77,999) are capable of Internet connectivity.
- About a third of Missouri's public school computers are connected to the Internet.
- Most Internet connected computers in Missouri public schools (42,391) are connected via a network with a dedicated Internet phone line.
- Over 90 percent of the Internet connected computers in Missouri public schools are in instructional (non-administrative) settings.
- Classrooms and computer labs are the most prominent settings for Internet computers. Classrooms account for 39 percent of the Internet computers and computer labs account for 37 percent.
- School libraries account for about nine percent of the Internet connected computers and vocational/technical and other areas account for an additional six and one half percent. Administrative settings account for eight and three fifths percent.
- High schools have the highest proportion of their computers connected to the Internet (46.3 percent), middle and junior high schools the next highest (36.9 percent), and elementary schools the lowest proportion (19.4 percent).

Number of Students per Internet Computer in Classrooms, Computer Labs, and School Libraries

- Overall, there are seven Missouri public school students for each instructional computer.
- There are 24 Missouri public school students for each Internet accessible computer.
- There is only a little difference between elementary and secondary schools in the number of students per instructional computer, but there is a relatively large difference between elementary and secondary schools when it comes to Internet accessible computers.
    - 15 high school students per Internet computer
    - 22 middle or junior high students per Internet computer
    - 39 elementary students per Internet computer
- Smaller schools have fewer students competing for Internet access. Schools with fewer than 200 students have 15 students per Internet computer while schools with more than 2,000 students have 48 students per Internet computer.

- More non-metropolitan students in Missouri must share Internet computers than metropolitan students. Schools in non-metropolitan counties have 25 students per Internet computer while schools in metropolitan counties have 20 students per Internet computer.
- Inner city and city schools tend to have larger enrollments than schools in towns and rural areas. Correspondingly, there are about 30 students per Internet computer among city schools, while schools in suburban areas and towns have about 23 students per Internet computer, and rural (mostly smaller) schools have 19 students per Internet computer. Notice that some of the difference between metropolitan and non-metropolitan schools may be attenuated by the relatively recent addition of outlying counties to Missouri's metropolitan areas.
- Schools with many poor students have less Internet access. There are about 23 students per Internet computer at schools with less than 50 percent of their students receiving free and reduced lunch. There are about 31 students per Internet computer at schools with more than 50 percent of their students receiving free and reduced lunch.

Internet Connections and Development

- About two-thirds of the Internet connected computers in Missouri public schools are running some version of the Windows operating system and about a third are Macintosh.
- Among the 858 Missouri public schools with dedicated Internet line connections most (73 percent) have 56 kilobytes per second connections. Nearly 14 percent have "T1" or 1.54 megabytes per second connections.
- MOREnet is the Internet service provider for nearly 90 percent of all Missouri public schools.
- Just over a third of Missouri public schools report being part of a Wide Area Network (WAN).
- About one-quarter of Missouri public schools report that they have a school Web page.

Internet Wiring and Computer Needs

- Over a third of Missouri's public school classrooms have been wired for Internet access.
- Nearly two-thirds of Missouri's public school classrooms remain to be wired for Internet access (29,054 out of 44,406).
- About 40 percent of Missouri's public secondary school classrooms are wired for the Internet, but only 25 percent of elementary classrooms are wired.
- There are over 42,000 computers connected to the Internet via networks in Missouri public schools.
- Almost 28,000 additional computers are required to provide at least one Internet accessible computer for each Missouri public school classroom. Elementary schools require 13,736 computers, middle/junior high school require 5,079 computers, and high schools require 9,145 additional computers.

The 1997 Missouri School District Computing Census
Summary Results - Building Instruction & Computing Census

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Student Instruction on the Use of Desktop Computers

- Ninety-five percent of Missouri public schools report that at least some of their students have received "hands-on" instruction on how to use desktop computers.
- Three-quarters of Missouri public schools report that over 50 percent of their students have received "hands-on" instruction on how to use desktop computers.

Student Instruction on the Use of the Internet

- Sixty-one percent of Missouri public schools report that at least some of their students have received "hands-on" instruction on how to use the Internet.
- Sixteen percent of Missouri public schools report that over 50 percent of their students have received "hands-on" instruction on how to use the Internet.

Students Use of the Internet for Educational Resources

- Sixty-one percent of Missouri public schools report that at least some of their students use the Internet to collect educational resources or to do research for classes.
- Twelve percent of Missouri public schools report that over 50 percent of their students use the Internet to collect educational resources or to do research for classes.

Students Use of the Internet in Classrooms

- Forty-three percent of Missouri public schools report that at least some of their students use the Internet in their classrooms as part of classroom instruction.
- Six percent of Missouri public schools report that over 50 percent of their students use the Internet in their classrooms as part of classroom instruction.

Students Use of District Supported E-Mail

- Eight percent of Missouri public schools report at least some of their students use district supported E-mail accounts.
- Two percent of Missouri public schools report that over 50 percent of their students use district supported E-mail accounts.

Teacher Professional Development on Instructional Application of the Internet

- Eighty-five percent of Missouri public schools report that at least some of their teachers have attended professional education programs on instructional applications of the Internet within the last calendar year.
- Twenty-seven percent of Missouri public schools report that over 50 percent of their teachers have attended professional education programs on instructional applications of the Internet within the last calendar year.

Teachers Use of the Internet for Educational Resources

- Eighty-four percent of Missouri public schools report that at least some of their teachers use the Internet to collect educational resources.
- Fourteen percent of Missouri public schools report that over 50 percent of their teachers use the Internet to collect educational resources.

Teachers Use of the Internet in Classroom Instruction

- Fifty percent of Missouri public schools report that at least some of their teachers incorporate student Internet access in their classrooms as a part of classroom instruction.
- Six percent of Missouri public schools report that over 50 percent of their teachers incorporate student Internet access in their classrooms as a part of classroom instruction.

Teachers Use of District Supported E-mail

- Sixty-two percent of Missouri public schools report that at least some of their teachers have district supported E-mail accounts.
- Twenty-eight percent of Missouri public schools report that over 50 percent of their teachers have district supported E-mail accounts.

Perceived Instructional Benefit

- The instructional benefit of the Internet is related to the level of access available to educators.
- While overall only 31 percent of Missouri schools report that Internet access has been benefit to instruction, among buildings where 50 percent or more of the staff use the Internet for educational resources, 64 percent reported that the Internet had been a benefit to instruction.
- The instructional benefit of the Internet is related to the level of access available to students.
- In schools with more than 24 students per Internet computer (the state average), about 20 percent of the instructors report that the Internet has been a benefit to instruction. At the same time, in schools with fewer than 24 students per Internet computer, about 36 percent of the instructors report that the Internet has been a benefit to instruction. Where there are fewer students per Internet computer the instructional benefit of the Internet is greater.
- Among the most frequently cited instructional benefits of the Internet are:
    - More resources available for research
    - More motivated students
    - Improved lesson plans for teachers
- Among the most frequently cited factors that limit the instructional impact of the Internet are:
    - Lack of computers
    - Lack of training on how to incorporate the Internet into instruction
    - Lack of time among teachers

Missouri Department of Elementary & Secondary Education

School Improvement

The 1997 Missouri School District Computing Census Summary Results - Notes:

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Overview of District Computing Census

The purpose of the District Computing Survey is to assess the overall level of network development in the District. The core item on the questionnaire records the number of Internet and E-mail accounts provided by types of users including teachers, students, administrators, patrons, parents and others. The questionnaire also records other indicators of network development including the number of district staff supporting instructional telecommunications or computing, Wide Area Network development, the number of Local Area Networks (LAN), and LAN operating systems. The questionnaire also asks if the district has adopted a technology plan and an acceptable use policy. It also asks if the district has established a World Wide Web page. Finally the questionnaire poses an open-ended question about unmet technology support needs. A copy of the District Computing Census is in the Appendix.

Overview of the School Building Computing Census

The main purpose of the Building Computing Census is to record the number of computers by level of Internet connectivity and by educational setting within each school. Additionally, the questionnaire gathers information about operating systems, Internet connection speeds, Internet provider, local area networks and World Wide Web development. Finally, the questionnaire gathers estimates of the number of additional classrooms that remain to be wired for the entire building to have network access to the Internet, and the number of additional computers needed to provide at least one Internet accessible computer in every classroom. The questionnaire is designed to be completed by a local staff member with knowledge of the school's computing and networking environment. The District central office selected the respondent for each school. A copy of the School Building Computing Census is in the Appendix.

Internet Capable Computers, Type of Internet Connectivity, Setting, and Students per Computer

The Building Computing Census makes some important distinctions about computers, Internet connectivity, educational settings, and the number of students per Internet computer. These are summarized below and described further in the Appendix.

Internet Capable Computers: The census distinguishes between total computers and "Internet capable computers." That is, there is a minimum level of hardware and software required to achieve an adequate connection to the Internet. The census adopted a working definition of Internet capable as set by MOREnet:

> PC's with at least a 386 processor with at least 8 meg of memory running Windows, or Mac's with at least a 68030 processor with at least 8 meg of memory

Types of Internet Connectivity: Among the subset of the school's computers that are Internet capable the census records the number that have no Internet connectivity, the number that have dial-up only connectivity, and the number that have connectivity via a network with a dedicated phone line.

Educational Setting: It is important for instructional and technical planning to understand the distribution of computers by level of Internet connectivity by setting within each school. Schools with Internet capable computers in classrooms have much greater opportunities for instructional impact than schools with computers located only in administrative areas or computer labs. Thus, the questionnaire uses a series of tables to record the number of computers by educational setting and then elaborates the level of Internet connectivity for each setting. The settings include: Administrative/Business Offices, Computer Labs, Classrooms, Library/Media Centers, Vocational Education or Technical Training Areas, or Other Settings.

Students per Instructional Internet Computer: To measure Internet access for instruction we calculated the number of students per Internet computer for those located in classrooms, computer labs, and school libraries. While computers in "vocational education" and "other areas" are clearly used for instruction these settings are too diverse for a generalized measure.

Overview of the Building Instruction and Computing Census

The Building Instruction and Computing Census assesses the extent to which students and teachers have access to the Internet, the extent to which they use it for instruction and the extent to which they think it benefits instruction in their school. Completed by building level instructional leaders, 85 percent of Missouri schools (1,871 out of 2,200) are included in the census. A copy of the Building Instruction and Computing Census is in the Appendix.

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The 1997 Missouri School District Computing Census

District Support Staff for Instructional Telecommunications And Computing

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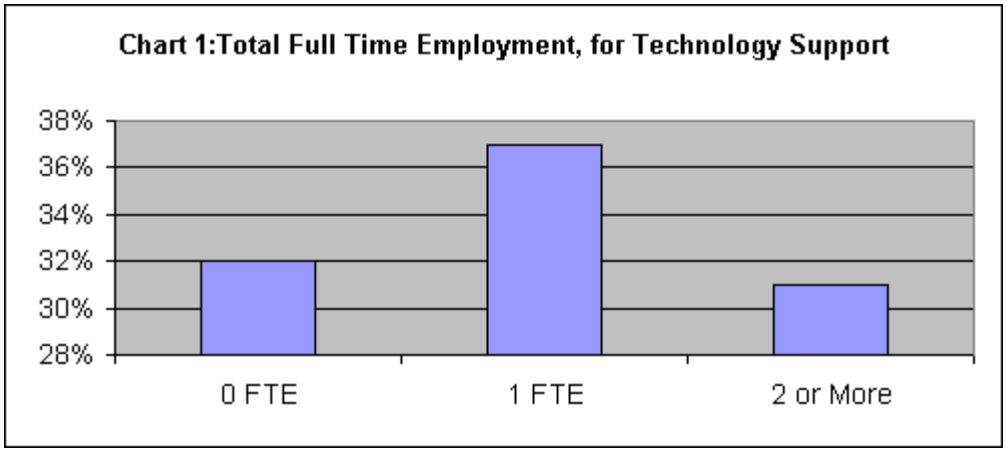
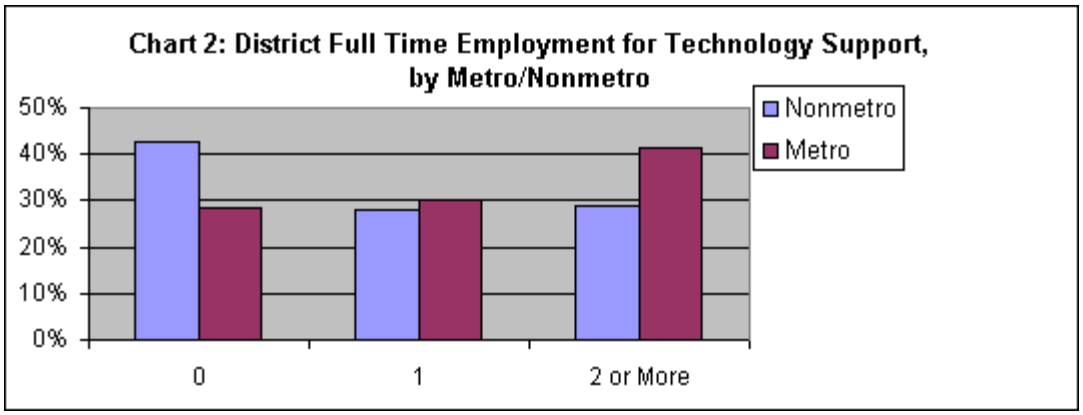
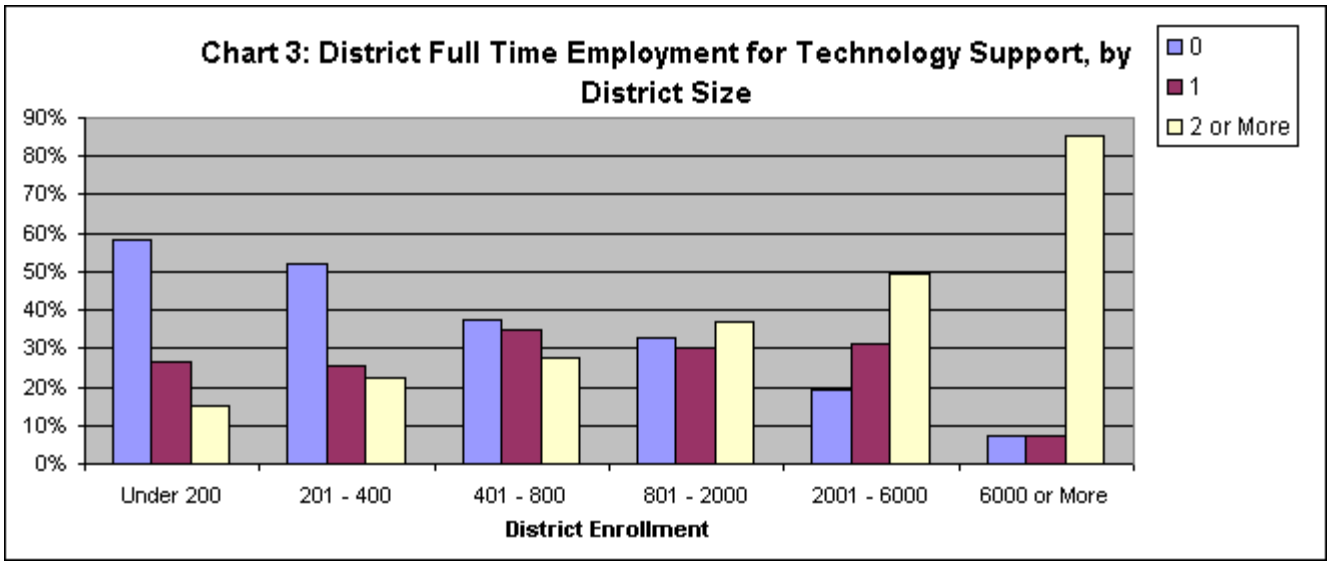
Table 1: District Support Staff for Instructional Telecommunications And Computing	
Total FTE	**Total**
0 FTE	32%
1 FTE	37%
2 or More	31%
N=521	







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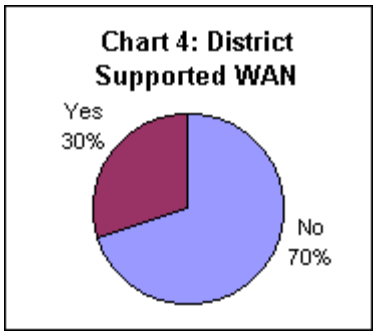
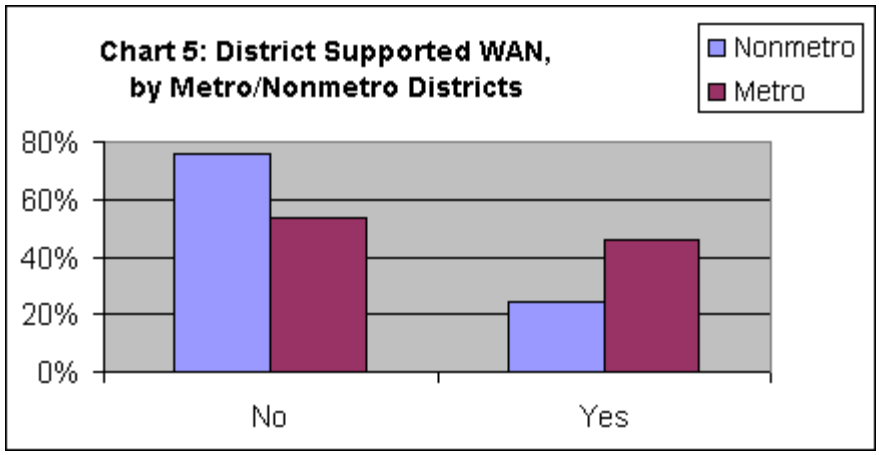
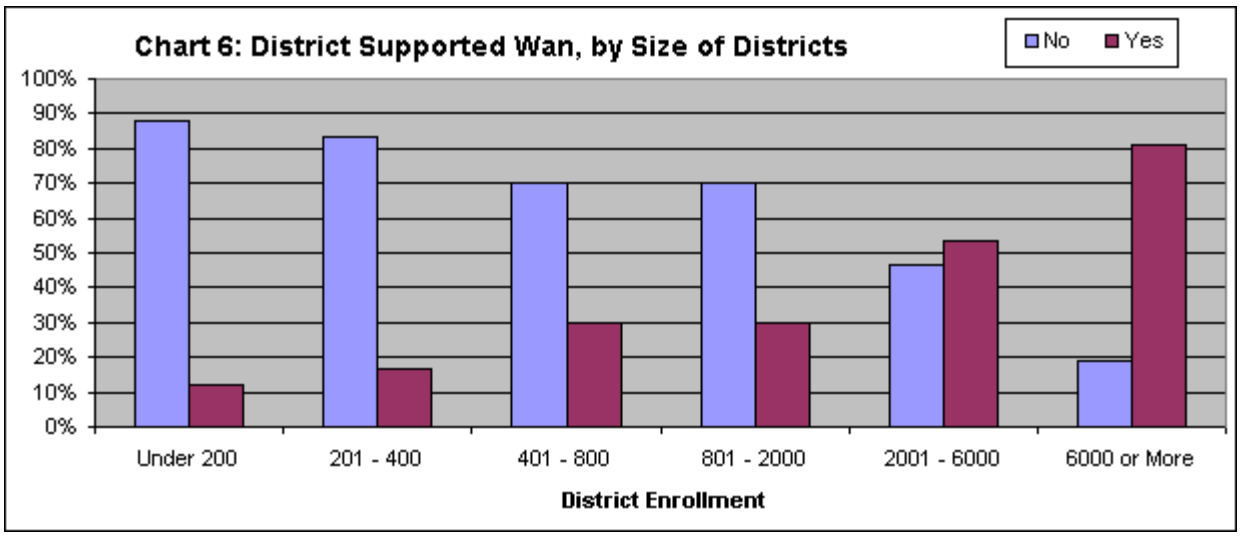
Does Your District Support a Wide Area Network?







The 1997 Missouri School District Computing Census

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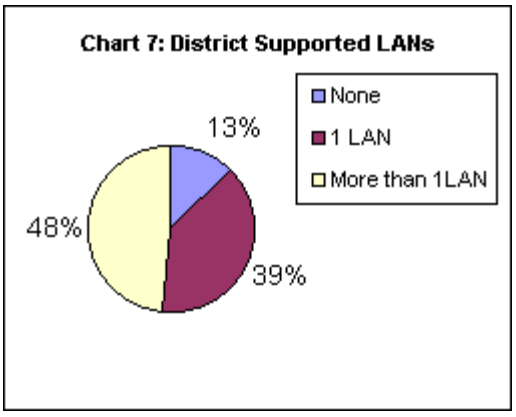
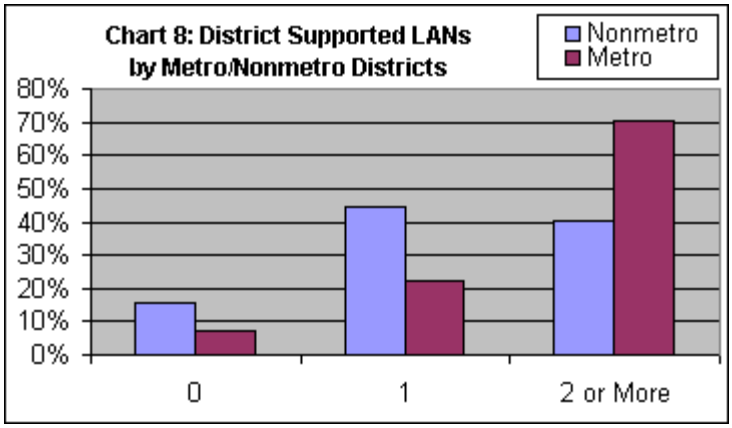
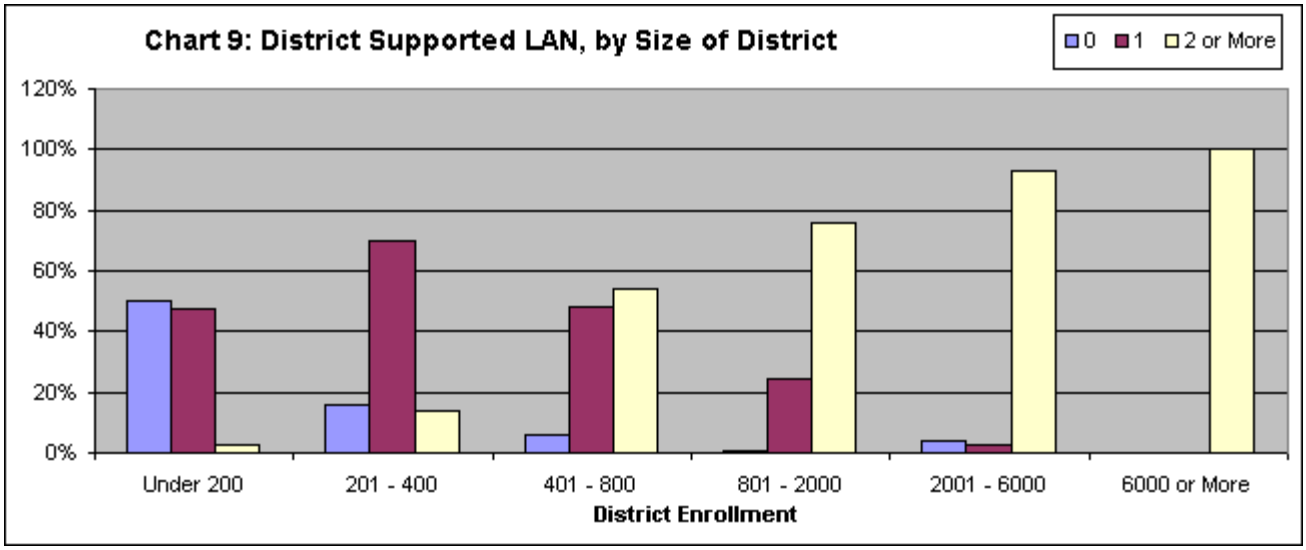
How Many Local Area Networks (LANs) Are Supported in Your District?

Table 2: Percent of District Supported Local Area Networks (LANs)	
Total	1,994
None	13%
1 LAN	39%
More than 1 LAN	49%
N=521	







Type of Operating System(s) Used with Your LAN(s)

Table 3: Types of Operating System(s) Used with Your LAN(s)		
Operating System	**Number and Percent in Use**	
	Number	Percent
Total	9,249	100%
Novell	7,680	83%
LANtastic	242	2.6%
Windows NT	363	3.9%
AppleShare/Macintosh	765	8.3%
Other	199	2.2%
N=521		

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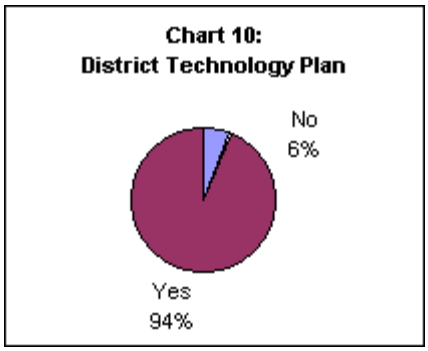
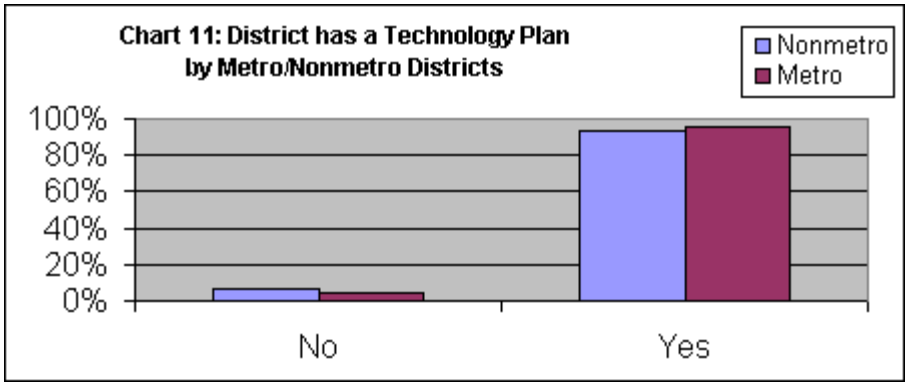
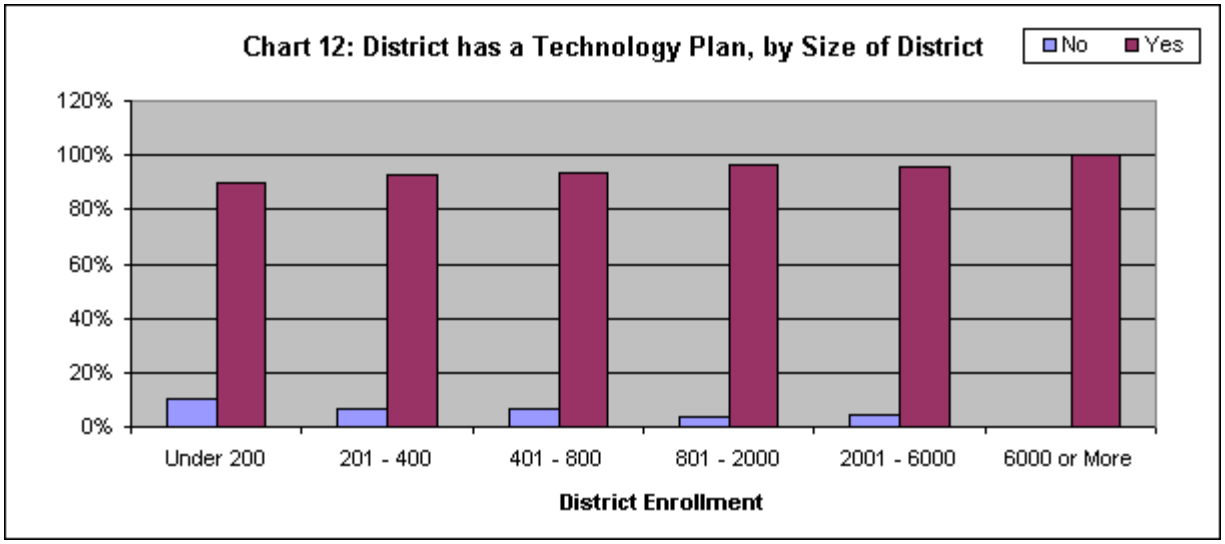
Has Your District Adopted a District Technology Plan?







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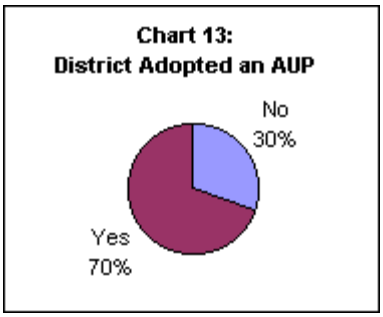
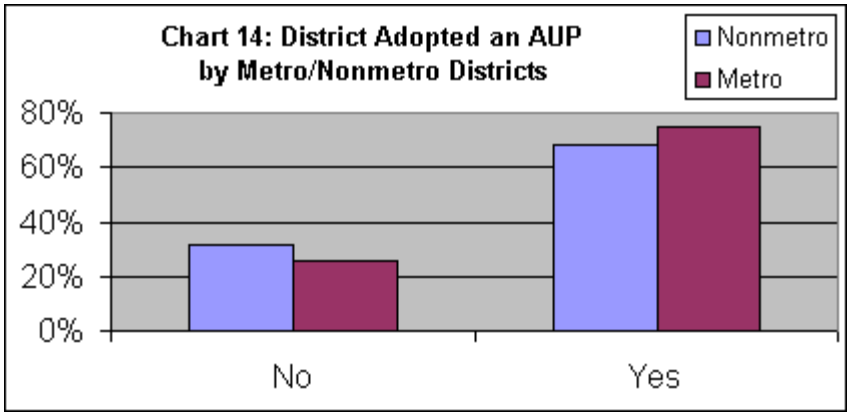
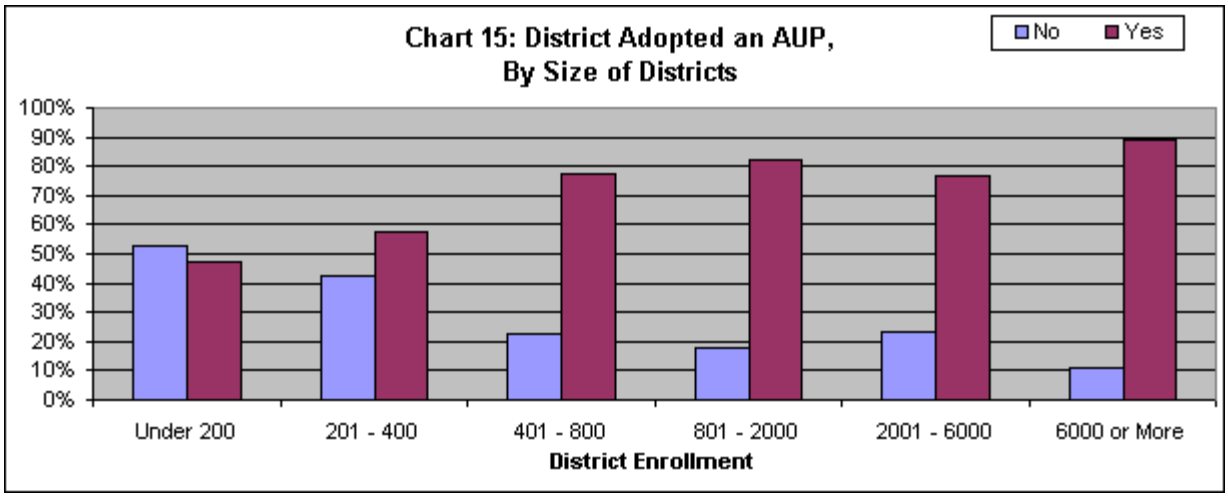
Has Your District Adopted a District Acceptable Use Policy (AUP)?







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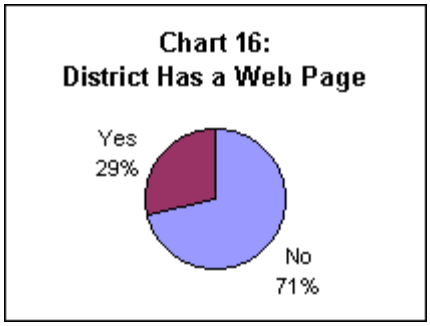
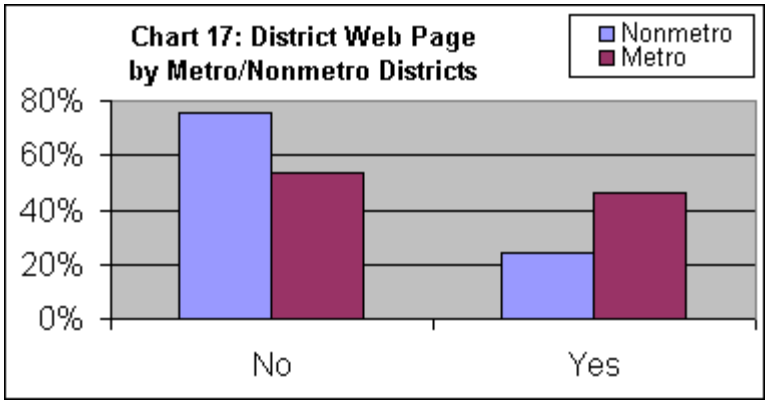
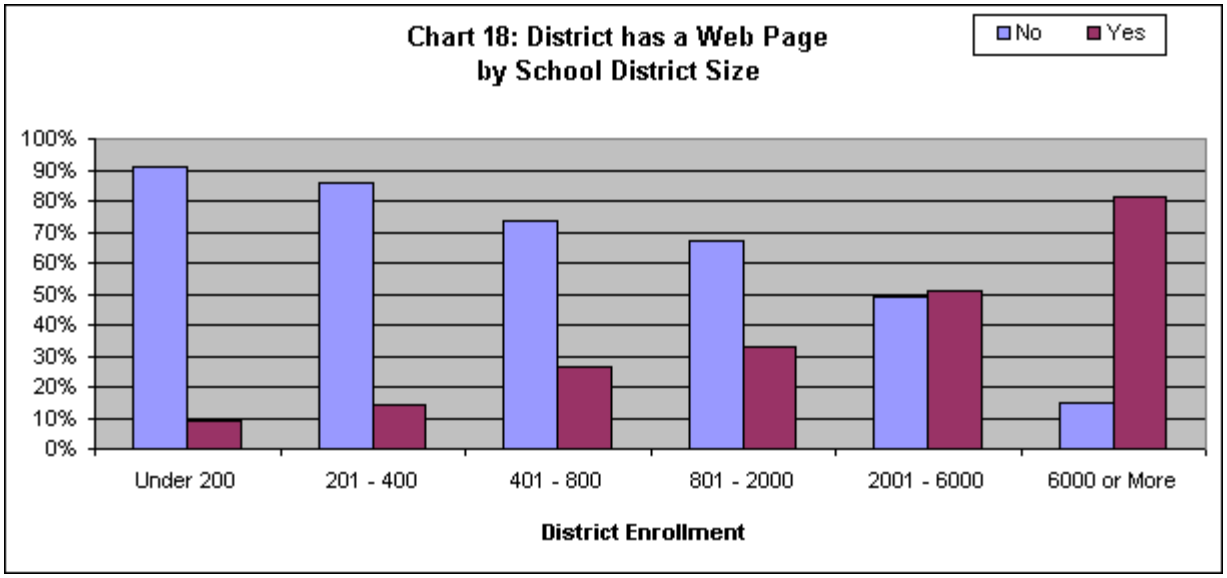
Does Your District Have a Web Page?







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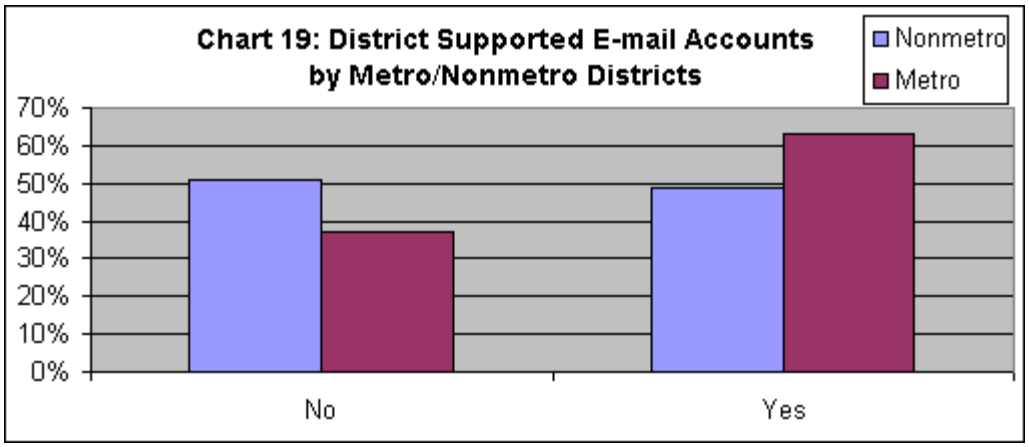
The 1997 Missouri School District Computing Census

Back to 1997 Census

District Supported E-mail and Dial-up Accounts

Table 4: District Supported E-mail Accounts by Type of User			
Type of User	**Percent Who Do Not Offer**	**Percent Who Do Offer**	**Range of the Number of Accounts Offered**
Administrators	54%	46%	1-153
Teachers	50%	50%	1-1232
Students	85%	15%	1-2917
Parents	99%	1%	1-1000
Local Patrons	96%	4%	1-1000
Other	90%	10%	1-200
N=521			



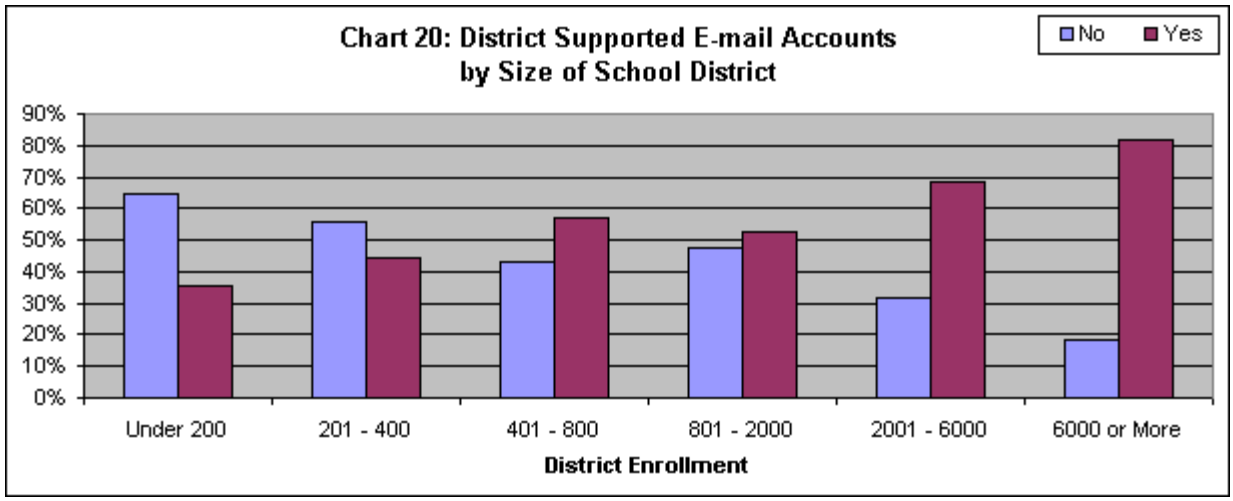
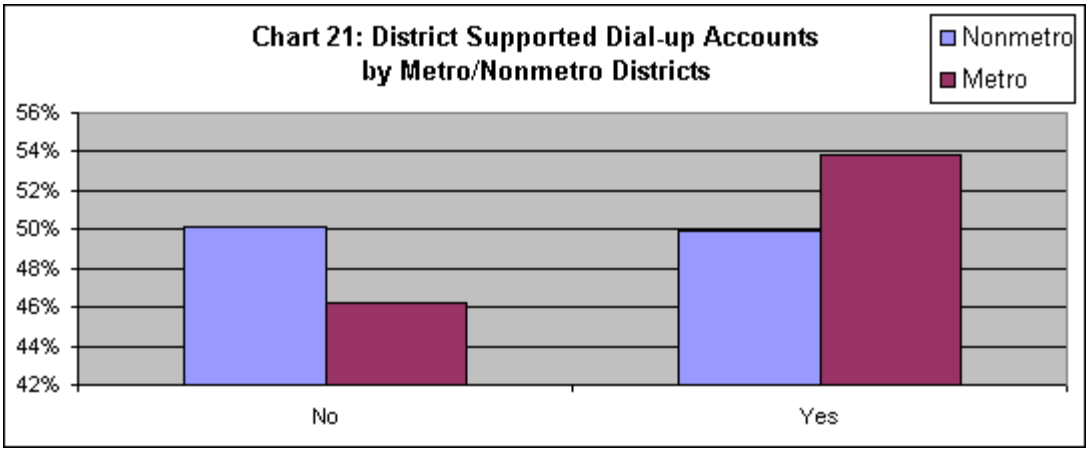
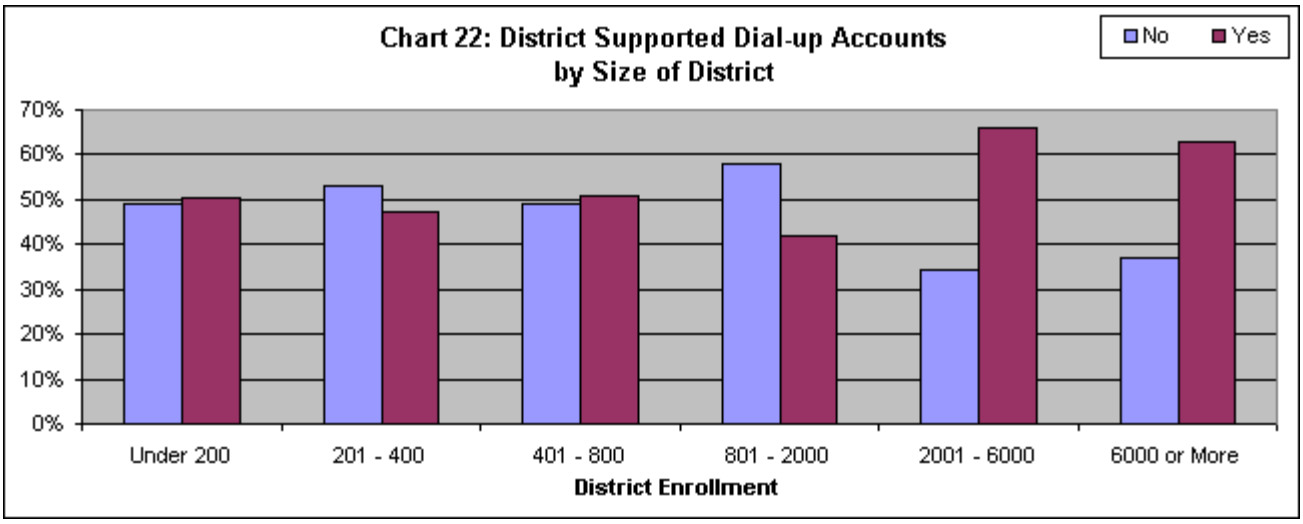


Table 5: District Supported Dial-up Accounts, by Type of User			
Type of User	**Percent Who Do Not Offer**	**Percent Who Do Offer**	**Range of the Number of Accounts Offered**
Administrators	60%	40%	1-100
Teachers	54%	50%	1-686
Students	96%	4%	1-240
Parents	98%	2%	1 to 20
Local Patrons	96%	4%	1 to 170
Other	99%	1%	1 to 2000
N=521			





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The 1997 Missouri School District Computing Census

Building Computing Census

Back to 1997 Census

Total Computers by Access Type and Setting

Table 7: Number of Computers by Capability and Access

Type of Setting	Total Computers	Non-Internet Capable	Internet Capable No-Access	Internet Capable Dail-Up	Internet Capable Dedicated
Missouri Total	139,128	61,129	33,365	2,243	42,391
Administrative	9,817	2,886	2,938	347	3,646
Computer Labs	47,268	18,912	12,075	609	15,672
Classrooms	61,090	31,387	12,654	608	16,441
Library/Media Ctrs	9,727	3,086	2,235	542	3,864
Voc/Tech Area	7,176	2,984	2,178	63	1,951
Other Settings	4,050	1,874	1,285	74	817

Table 8: Percent of Computers by Capability and Access

Type of Setting	Total Computers	Non-Internet Capable	Internet Capable No Access	Internet Capable Dial-Up	Internet Capable Dedicated	Total
Missouri Total	139,128	43.90%	24.00%	1.60%	30.50%	100%
Administrative	9,817	29.40%	29.90%	3.50%	37.10%	100%
Computer Labs	47,268	40.00%	25.50%	1.30%	33.20%	100%
Classrooms	61,090	51.40%	20.70%	1.00%	26.90%	100%
Library/Media Ctrs	9,727	31.70%	23.00%	5.60%	39.70%	100%
Voc/Tech Area	7,176	41.60%	30.40%	0.90%	27.20%	100%
Other	4,050	46.30%	31.70%	1.80%	20.20%	100%

Settings						
N=2,132						

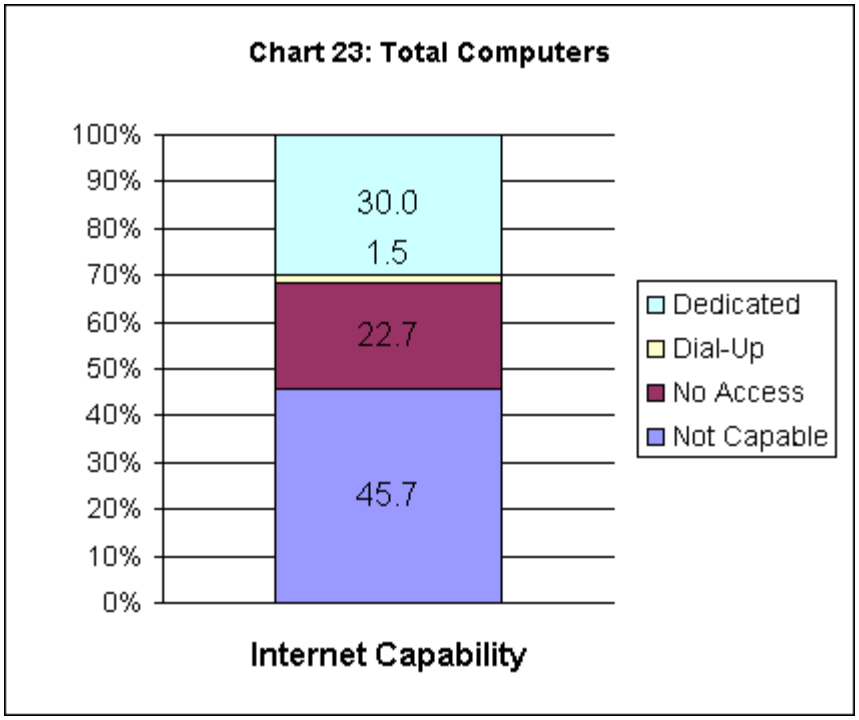
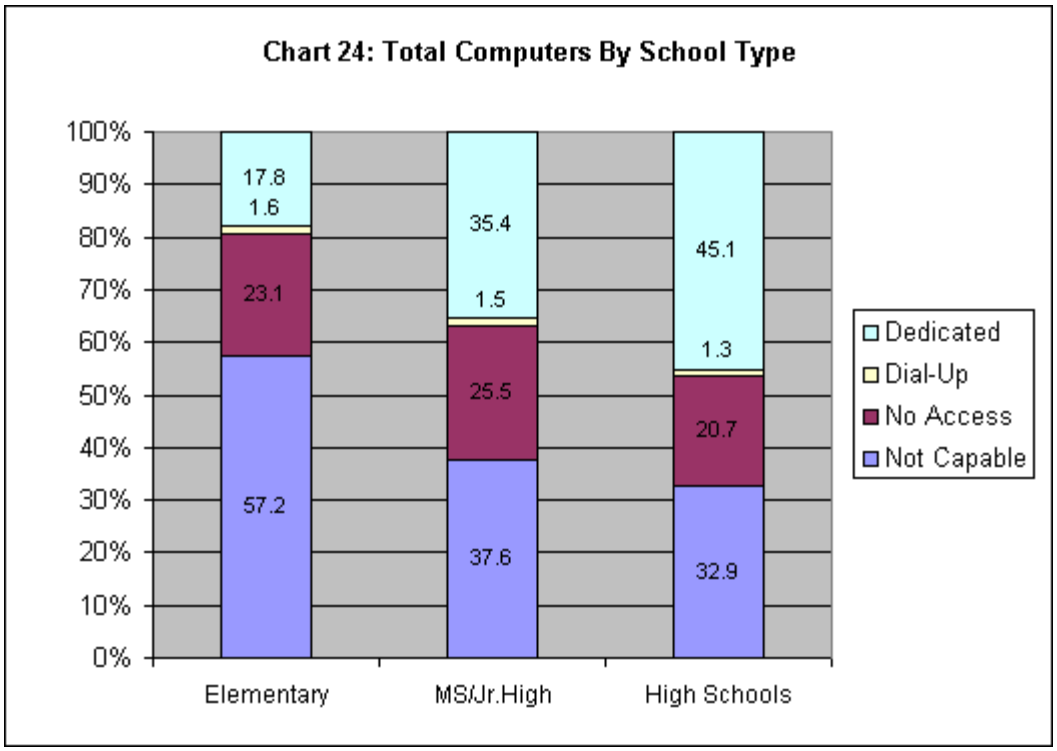


Table 9: Percent of Computers by Setting					
Type of Setting	**Total Computers**	**Non-Internet Capable**	**Internet Capable No Access**	**Internet Capable Dial-Up**	**Internet Capable Dedicated**
Missouri Total	139,128	61,129	33,365	2,243	42,391
Administrative	7.1%	4.7%	8.8%	15.5%	8.6%
Computer Labs	34.0%	30.9%	36.2%	27.2%	37.0%
Classrooms	43.9%	51.3%	37.9%	27.1%	38.8%
Library/Media Ctrs	7.0%	5.0%	6.7%	24.2%	9.1%
Voc/Tech Area	5.2%	4.9%	6.5%	2.8%	4.6%
Other Settings	2.9%	3.1%	3.9%	3.3%	1.9%
Total	100%	100%	100%	100%	100%

Table 10: Number and Percnet of Computers by Type of Building						
Type of Building	**Total Computers**	**Non-Internet Capable**	**Internet Capable No Access**	**Internet Capable Dial-Up**	**Internet Capable Dedicated**	**Total**
Elementary	56,454	32,312	13,052	896	10,062	

MS/Jr. High	19,352	7,279	4,936	285	6,849	
High Schools	38,750	12,733	8,013	503	17,470	
Elementary	56,454	57.2%	23.1%	1.6%	17.8%	100%
MS/Jr. High	19,352	37.6%	25.5%	1.5%	35.4%	100%
High Schools	38,750	32.9%	20.7%	1.3%	45.1%	100%



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The 1997 Missouri School District Computing Census

Building Computing Census

Back to 1997 Census

District Level Reports Now Available

Students per Computer

Table 11: Students Per Computer by Building, Metro/Nonmetro, School Type, Free Reduced Lunch

Category	Total Computers	Internet Capable	Internet Connected
Missouri	7	14	24
Building Enrollment	**Total**	**Capable**	**Connected**
Less Than 200	5	9	15
201 - 400	6	13	25
401 - 800	9	16	28
801 - 2000	8	13	20
2000 or More	10	17	48
Geography	**Total**	**Capable**	**Connected**
Inner City	9	16	30
City	6	15	31
Suburban	8	17	23
Suburban Fringe	9	13	21
Town	9	15	24
Small Town	9	16	24
Rural	7	12	19
Metro/Nonmetro	**Total**	**Capable**	**Connected**
Metro	7	7	20
Nonmetro	7	7	25
School Type	**Total**	**Capable**	**Connected**

High Schools	7	10	15
MS/Jr. High	8	13	22
Elementary	8	18	39
Free Lunch	**Total**	**Capable**	**Connected**
Less Than 25%	7	13	22
25% - 50%	8	14	23
50% or More	9	16	31

Networked Internet Capable Computers

Table 12: Number and Percent of Networked Internet Capable Computers

Type of Setting	Number of Networked Internet Capable Computers	Percent of Total
Missouri Total	57,321	100.0%
Administrative	5,339	9.3%
Computer Labs	23,463	40.9%
Classrooms	19,549	34.0%
Library/Media Ctrs	5,154	8.9%
Voc/Tech Area	2,435	4.2%
Other Settings	1,381	1.7%

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The 1997 Missouri School District Computing Census

Building Computing Census

Back to 1997 Census

Internet Capable Computers by Type of Operating System

Table 13: Number and Percent of Computers by Operating System		
Operating System	**Internet Capable Computers**	**Percent of Total**
Missouri Total	74,838	100.0%
Windows 3.1	23,578	31.5%
Windows 95	16,660	22.3%
Windows for Workgroups	8,293	11.1%
Windows NT Workstations	825	1.1%
Macintosh	23,545	31.5%
Other	1,937	2.6%
N=2132		

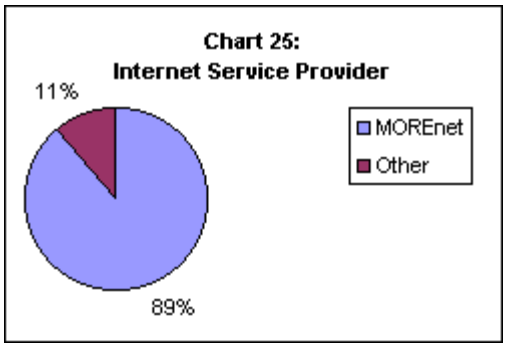
What Is the Speed of Your Dedicated Connection?

Table 14: Number of Buildings by Speed of the Dedicated Connection (DC)		
Speed	**Number**	**Percent of Total**
Total w/a DC	858	100%
56K	622	72.5%
384K	71	8.3%
T1	116	13.5%
Other	49	5.7%
N=2132		

Who Is Your Internet Service Provider?

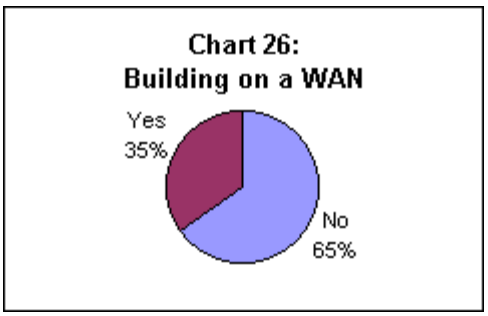
	Percent	Number

MOREnet	89%	1,897
Other	11%	235
N=2132		



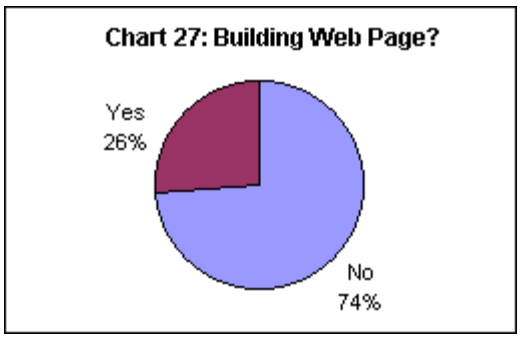
Is This Building on a Wide Area Network (WAN)?

No	65%
Yes	35%



Does Your Building Have a Web Page?

No	74%
Yes	26%



How Many Classrooms Remain to Be Wired for the Entire Building to Have Network Access to the Internet? (For Example, 10 of 20 Classrooms.)

Table 15: Number and Percent of Classrooms Remaining to Be Wired

Type of Building	Total Classrooms	Number of Classrooms to be Wired	Percent of Classrooms to be Wired
Missouri Total	44,406	29,054	65.0%
Elementary	21,573	15,878	74.0%
MS/Jr. High	8,365	4,743	57.0%
High Schools	14,471	8,436	58.0%
N=2,132			

How Many Additional Computers Would Be Required to Provide at Least One Internet Accessible Desktop Computer per Classroom?

Table 16: Number and Percent of Additional Computers Needed		
Type of Building	**Additional Computers Needed**	**Percent Needed**
Missouri Total	27,960	100.0%
Elementary	13,736	49.1%
MS/Jr. High	5,079	18.2%
High Schools	9,145	32.7%

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The 1997 Missouri School District Computing Census
Building Instruction Census

Back to 1997 Census

Internet and Instruction

Table 17: Student Use (N=1,871)

1.) What proportion (percent) of students in your school have received hands-on instruction on how to use desktop computers?

Proportion	Percent
Zero	5%
50% of the Students	19%
50% to 100% of the Students	76%

2.) What proportion of students in your school have received hands-on instruction on how to use the Internet?

Proportion	Percent
Zero	39%
50% of the Students	45%
50% to 100% of the Students	16%

3.) What proportion of students in your school use Internet access to collect educational resources or to do research for classes?

Proportion	Percent
Zero	39%
50% of the Students	49%
50% to 100% of the Students	12%

4.) What proportion of students in your school use the Internet in their classrooms as a part of classroom instruction?

Proportion	Percent
Zero	56%
50% of the Students	37%

50% to 100% of the Students	6%

5.) What proportion of students in your school have district-supported e-mail accounts?

Proportion	Percent
Zero	91%
50% of the Students	6%
50% to 100% of the Students	2%

Table 18: Teacher Use (N=1,871)

6.) What proportion of teachers in your school have attended professional education programs on instructional applications of the Internet within the last calendar year?

Proportion	Percent
Zero	15%
50% of the Teachers	58%
50% to 100% of the Teachers	27%

7.) What proportion of teachers in your school use Internet access to collect educational resources?

Proportion	Percent
Zero	16%
50% of the Teachers	70%
50% to 100% of the Teachers	14%

8.) What proportion of teachers in your school incorporate student Internet access in their classrooms as a part of classroom instruction?

Proportion	Percent
Zero	50%
50% of the Teachers	44%
50% to 100% of the Teachers	6%

9.) What proportion of teachers in your school have district-supported e-mail accounts?

Proportion	Percent
Zero	38%
50% of the Teachers	34%

50% to 100% of the Teachers	28%

Table 19: Internet Benefit on Instruction

10.) How much has Internet access benefited instruction in your school?
Please rate the extent of benefit on the scale: 1 = no benefit 5 = great benefit

Rank of:	Percent
1	28.4%
2	20.5%
3	20.3%
4	18.1%
5	12.7%
N=1,871	

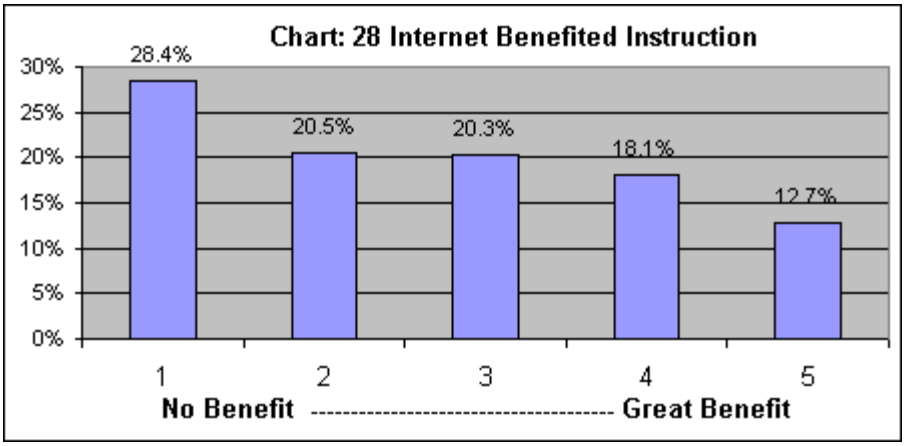


Table 20: Instructional Benefit Controlling for Reported Use by Teachers and Students
The proportion of students and teachers who say they use it for instructional purposes (Q3 and Q7 >50%)

Rank of:	Percent
1	1.50%
2	7.10%
3	27.20%
4	34.60%
5	29.50%
N=1,871	

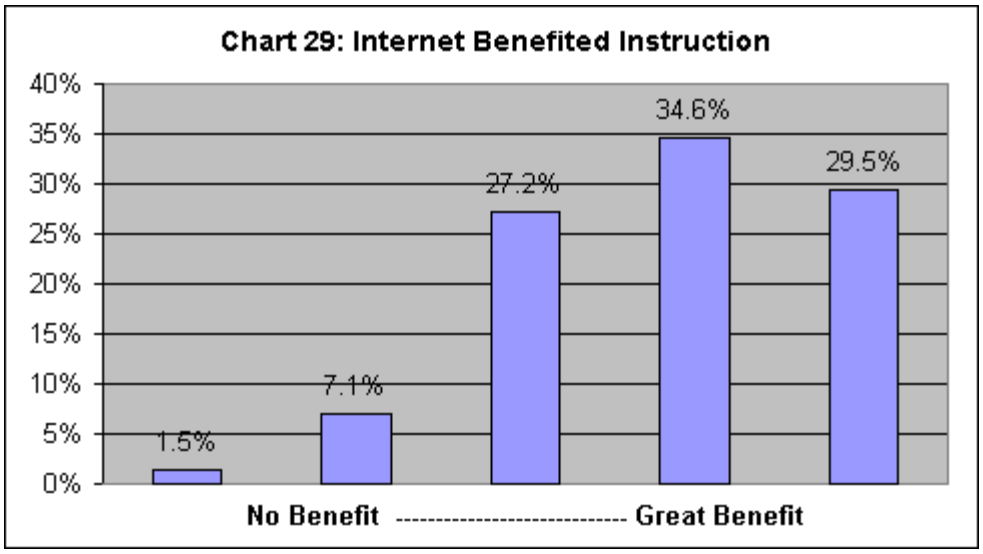


Table 21: Instructional Benefit Controlling for Student Per Internet Connected Computer
Students Per Internet Connected Computer Greater Than the State Average (24-1)

Rank of:	Percent
1	28.0%
2	32.3%
3	19.7%

4	11.9%
5	8.1%
N=1,871	

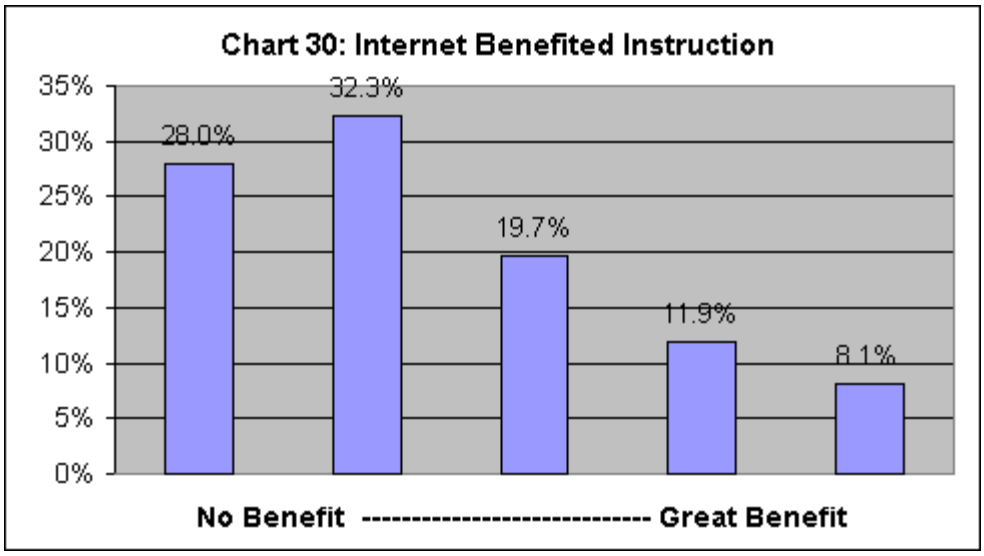
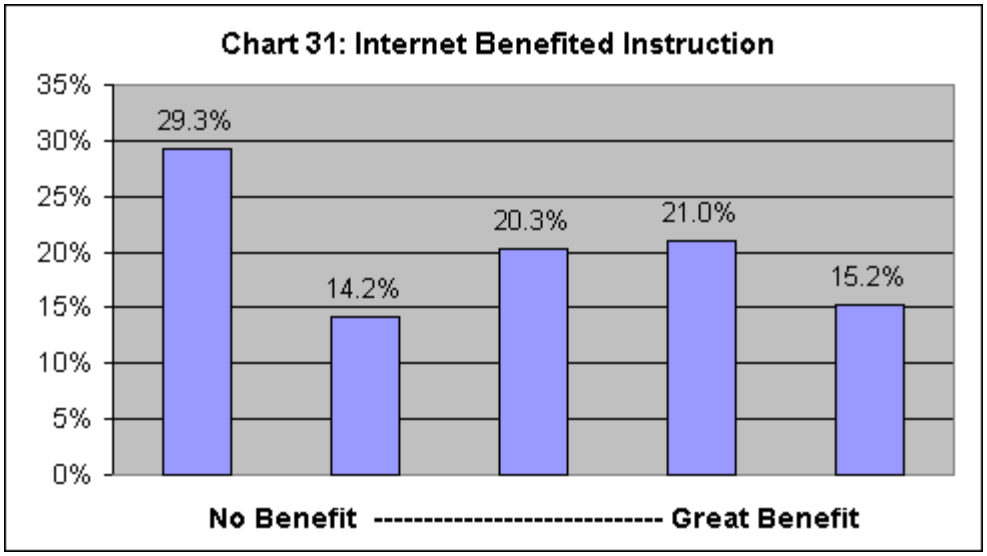


Table 22: Instructional Benefit Controlling for Student Per Internet Connected Computer
Students Per Internet Connected Computer Less Than the State Average (24-1)

Rank of:	Percent
1	29.3%
2	14.2%
3	20.3%
4	21.0%
5	15.2%
N=1,871	



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The 1997 Missouri School District Computing Census

OVERVIEW OF CENSUS METHODOLOGY

Back to 1997 Census

Introduction: The 1997 Missouri Census of Elementary and Secondary Education Computing gathered essential baseline information about instructional computing and the Internet among Missouri public schools. A "census" methodology was used to gather information from all Missouri School Districts and schools. Often survey projects draw inferences about a population by measuring the characteristics of a relatively small, usually random, sample of the larger population. However, Missouri School Districts have very diverse characteristics and also have widely different levels of technology. To establish definitive baseline information every district and every school was enumerated and data sought from all of them--a census.

Response Rate Analysis: High response rates were achieved and the resulting information is the most definitive available. Comparative analysis of the districts and schools, controlling for enrollment size, type of school, and geographic location (see the attached tables and charts), included in the census reveal that they almost perfectly match the characteristics of all Missouri School Districts. A review of the relatively few non-responding districts ind icates that they are predominately small school districts containing only elementary schools--elementary school districts. The schools not responding to the Building Computing and Instruction Census included somewhat more inner-city buildings than the population overall, however, the census count is substantially similar to population characteristics from the Department's "Core Data" system.

Summary of the Questionnaires: There are three questionnaires.

> **The District Computing Questionnaire** assesses the overall extent of Internet networking at each Missouri school district. Completed by district level technology specialists, ninety-six (96) percent of Missouri Districts (504 out of 525) are included in the census.
>
> **The Building Computing Questionnaire** assesses the level of Internet connectivity for each building. Completed by building level staff with technology responsibilities, ninety-seven (97) percent of Missouri schools (2,132 out of 2200) are included in the census.
>
> **The Building Instruction and Computing Questionnaire** assesses the extent to which students and teachers have access to the Internet, the extent to which they use it for instruction and the extent to which they think it benefits instruction in their school. Completed by building level instructional leaders, 85 percent of Missouri schools (1,871 out of 2,200) are included in the census.

Design, Distribution and Follow-up

In late 1996 Department of Elementary and Secondary Education Staff, MOREnet Staff, and OSEDA staff collaborated in the design of the census questionnaires. Initial versions were

pilot tested among a small group of technology coordinators and teachers. Following revisions, final formats were approved. In February 1997, Missouri School Districts were informed of the forthcoming technology census by letters from Commissioner of Education, Dr. Robert Bartman. A description of the scope and purposes of the census was included in the Commissioner's Monthly Newsletter. In February 1997, questionnaires were mailed by OSEDA to all Missouri School Superintendents along with detailed instructions for the identification of staff respondents. Between February and July an extensive follow-up was conducted by Department of Elementary and Secondary Education staff and by OSEDA staff. Table A1 includes a chronology of these follow-up efforts. On June 30th, the census database was closed for processing.

REVIEW OF QUESTIONNAIRES

The Building Computing Questionnaire The main purpose of the Building Computing Questionnaire is to record the number of computers by level of Internet connectivity and by educational setting within each school. Additionally, the questionnaire gathers information about operating systems, Internet connection speeds, Internet provider, Local Area Networks, and World Wide Web development. Finally, the questionnaire gathers estimates of the number of additional classrooms that remain to be wired for the entire building to have network access to the Internet, and the number of additional computers needed to provide at least one Internet accessible computer in every classroom.

The questionnaire is designed for completion by a district staff member with knowledge of the school's computing and networking environment. The District central office selected these staff members for each school. The relation between level of Internet connectivity and educational setting is elaborated below. A copy of the Building Computing Census is attached.

Level of Internet Connectivity

The Total Number of Computers and Number of Internet Capable Computers

The first issue in assessing the level of Internet connectivity within a school is to discern the total number of computers in the building and the subset of the total that are "Internet capable." That is, there is a minimum level of hardware and software required to achieve an adequate connection to the Internet. The census adopted the MOREnet standard for "Internet Capable Computers" used at the onset of Project Connect:

> PC's with at least a 386 processor with at least 8 meg of memory running Windows, or Mac's with at least a 68030 processor with at least 8 meg of memory

Type of Internet Connectivity

Among the subset of the school's computers that are Internet capable, the questionnaire records the number that have no Internet connectivity, the number that have dial-up only connectivity, and the number that have connectivity via a network with a dedicated phone line.

Educational Setting

It is important for instructional and technical planning to understand the distribution of computers by level of Internet connectivity by setting within each school. Schools with Internet capable computers in classrooms have much greater opportunities for instructional impacts than schools with computers located only in administrative areas or computer labs. Thus, the questionnaire uses a series of tables to record the number of computers by

educational setting and then elaborates the level of Internet Connectivity for each setting. The settings include: Administrative/Business Offices, Computer Labs, Classrooms, Library/Media Centers, Vocational Education or Technical Training Areas, or Other Settings.

The District Computing Survey

The main purpose of the District Computing Survey is to summarize the overall level of network development in the District. The core item on the questionnaire records the number of Internet and E-mail accounts provided by types of users including teachers, students, administrators, patrons, parents, and others. The questionnaire also records other indicators of network development including the number of district staff supporting instructional telecommunications or computing, Wide Area Network development, the number of Local Area Networks (LAN), LAN operating systems. The questionnaire also asks if the district has adopted a technology plan and an acceptable use policy. It also asks if the district has established a World Wide Web page. Finally, the questionnaire poses an open-ended question about unmet technology support needs.

The District Computing Questionnaire is designed for completion by a district staff member with knowledge of the district's overall computing and networking environment--usually the "technology coordinator." The District central office selected this respondent. A copy of the District Computing Questionnaire is attached.

The Building Instruction and Computing Questionnaire

The main purpose of the Building Instruction and Computing Questionnaire is to record the extent to which students and teachers have access to the Internet, the extent to which they use it for instruction, and the extent to which they think it benefits instruction in their school. A copy of the Building Instruction and Computing Questionnaire is attached.

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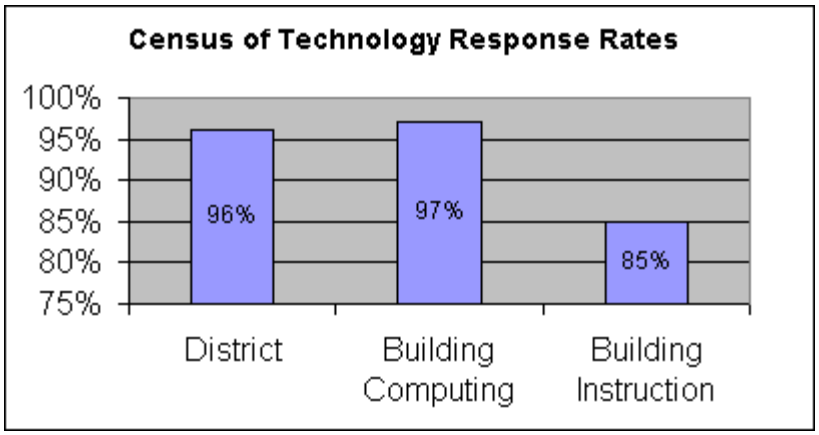
The 1997 Missouri School District Computing Census

RESPONSE RATES

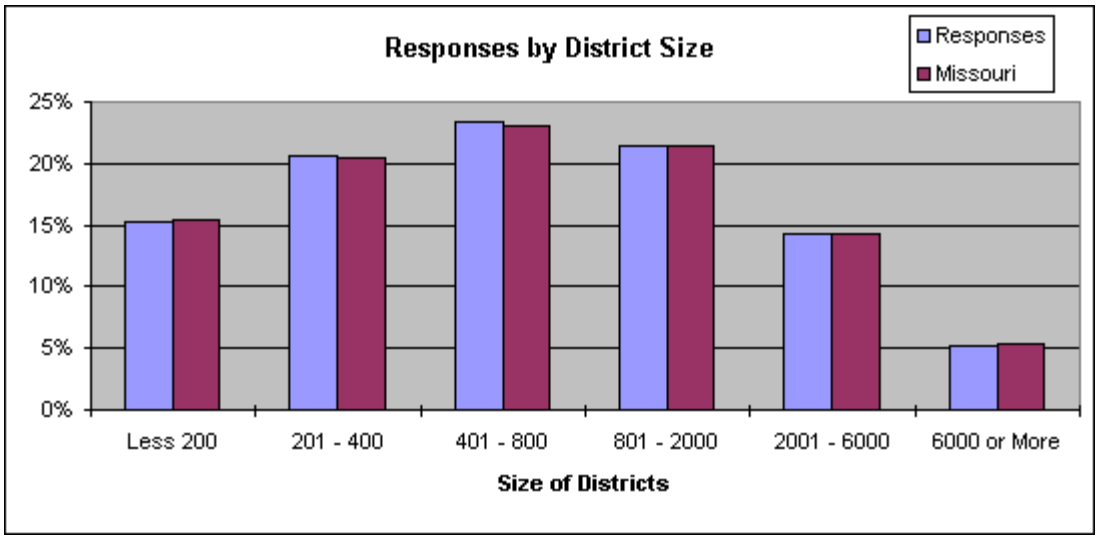
Back to 1997 Census

District	Building Computing	Building Instruction
96%	97%	85%



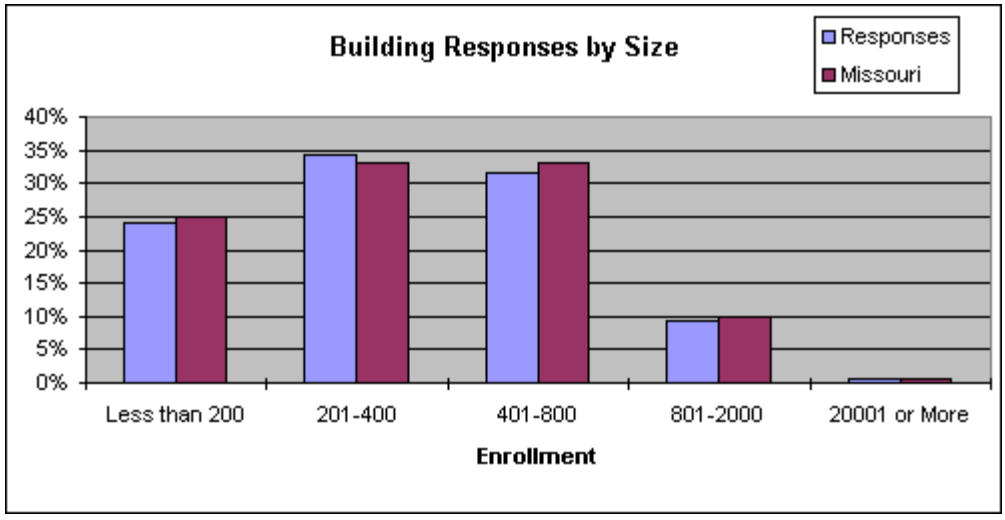
District Computing Survey	
504 / 525	96%

District Size	Responses	Missouri
Less than 200	15.3	15.4
201 - 400	20.6	20.4
401 - 800	23.3	23
801 - 2000	21.4	21.5
2001 - 6000	14.3	14.3
6000 or More	5.2	5.3



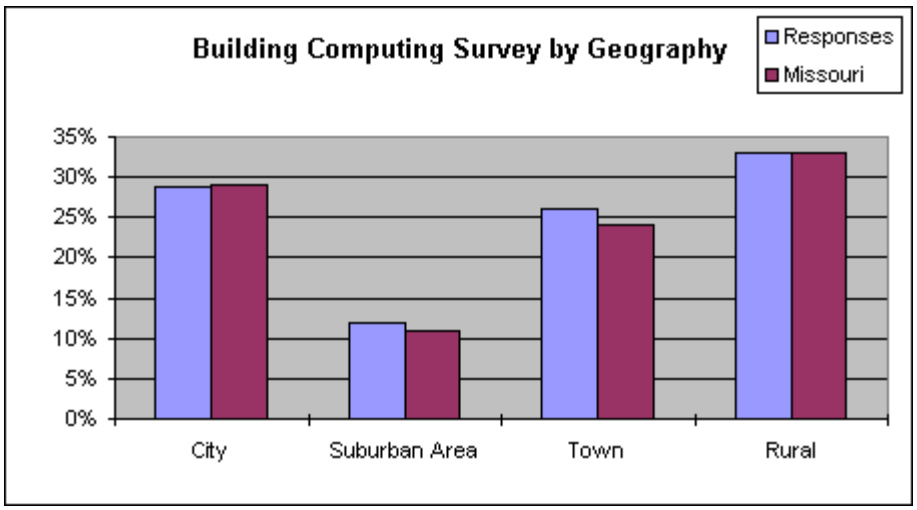
Building Computing Survey	
2132 / 2200	97%

Building Size	Responses	Missouri
Less than 200	24.1%	25.0%
201-400	34.2%	33.0%
401-800	31.7%	33.0%
801-2000	9.3%	9.8%
20001 or More	0.6%	0.6%

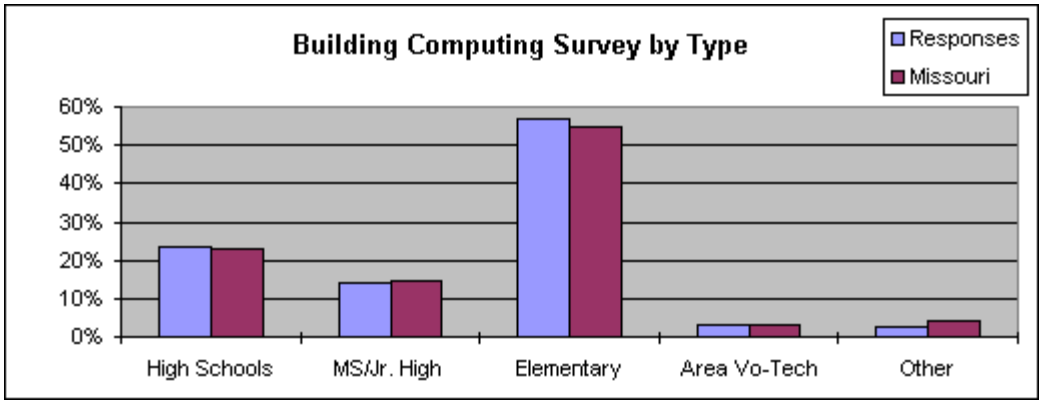


Geography	Responses	Missouri
City	28.8%	29%
Suburban Area	12%	11%

Town	26%	24%
Rural	33%	33%



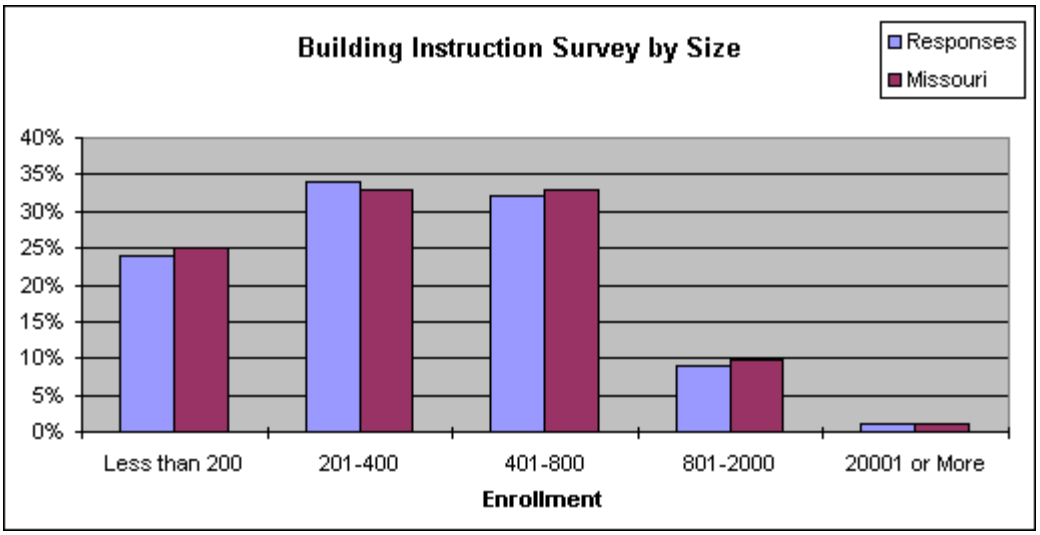
Type of Building	Responses	Missouri
High Schools	23.3%	23.0%
MS/Jr. High	14.0%	14.5%
Elementary	57.0%	55.0%
Area Vo-Tech	3.0%	3.0%
Other	2.6%	4.0%



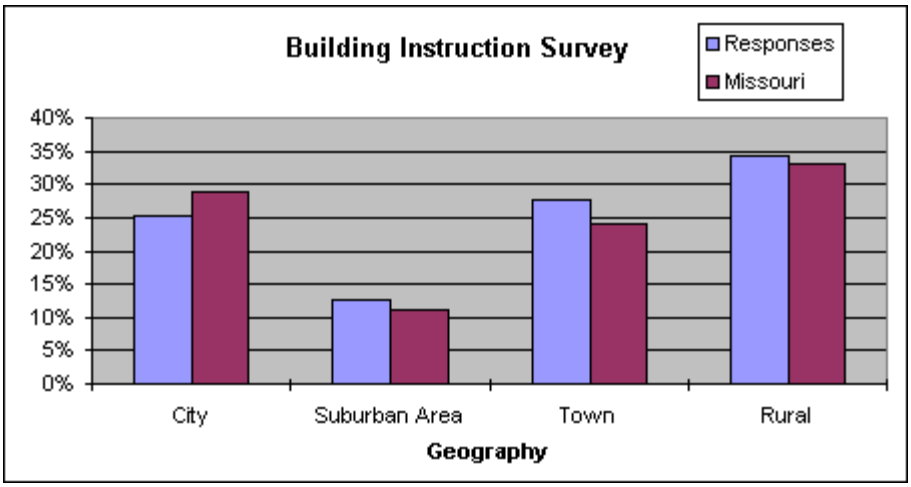
Building Instruction Survey	
1871 / 2200	85%

Building Size	Responses	Missouri
Less than 200	24.0%	25.0%
201-400	34.0%	33.0%

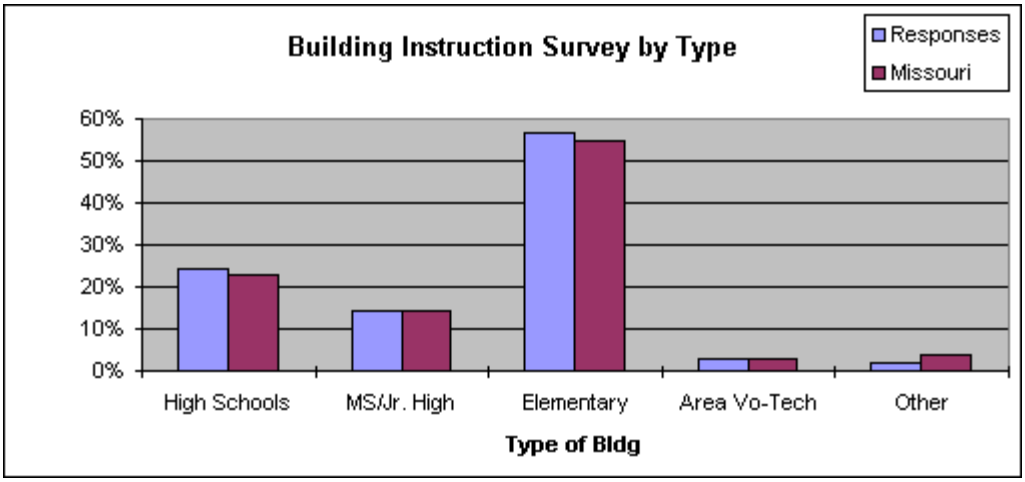
401-800	32.0%	33.0%
801-2000	9.0%	9.8%
20001 or More	1.0%	1.0%



Geography	Responses	Missouri
City	25.30%	29.00%
Suburban Area	12.50%	11.00%
Town	27.80%	24.00%
Rural	34.30%	33%



Type of Building	Responses	Missouri
High Schools	24.4%	23.0%
MS/Jr. High	14.4%	14.5%
Elementary	56.6%	55.0%
Area Vo-Tech	2.7%	3.0%
Other	2.0%	4.0%



Missouri Department of Elementary and Secondary Education

"Making a positive difference through education and service"

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Phone: 573-751-8247 Fax: 573-522-1134
Last Revised: October 22, 2008

The 1997 Missouri School District Computing Census

Table A1: 1997 Census of Computing Distribution and Follow-up Activities

Back to 1997 Census

1. During the first week of February 1997 the Department of Elementary and Secondary Education Census of Technology was mailed to the public school districts of Missouri:

   District Computing Survey - 525 districts
   Building Computing Survey - 2,213 core data buildings
   Building Instruction and Computing Survey - 2,213 core data buildings

2. Notice of the Census and an appeal to school personnel for cooperation in completing the Census were posted in the February 1997 Commissioner's newsletter to school administrators.

3. During the first week of March 1997 a message was placed on the Project CONNECT district coordinators listserve reminding the coordinators of the survey and emphasizing the importance of completing it. (MOREnet personnel also used their influence wi th the districts or with particular district personnel in an effort to get compliance from certain districts/personnel.)

4. A second notice of the Census and appeal for cooperation in completing it were posted in the April 1997 Commissioner's newsletter to school administrators.

5. During the second week of April 1997 a re-mailing of all census forms was made to the 117 districts (less Kansas City and St. Louis) which had not submitted any forms for processing.

6. During the third week of April 1997 a re-mailing of selected census forms was made to 208 districts which had submitted some but not all the forms for processing.

7. During the second week of May 1997 a team of OSEDA personnel traveled to the Kansas City, Missouri, school district to meet with district computer technology personnel to facilitate completion.

8. Beginning the third week of May 1997 the first round of follow up telephone calls was made by OSEDA personnel to districts with zero compliance on the District Computing Survey.

9. During in the third week of May 1997 a second round of follow up telephone calls was made by OSEDA personnel to districts with zero compliance on all Census forms.

10. During the third week of May 1997 a team of OSEDA personnel traveled to the St. Louis, Missouri, school district to meet with district computer technology personnel to facilitate completion.

11. During the fourth week of May 1997 a third round of follow up telephone calls was made by OSEDA personnel to districts with zero compliance on all forms and to other districts with certain buildings which had no record of submitting any Census form.

12. During the month of June 1997 telephone contacts with zero compliance districts and buildings were continued by OSEDA personnel, and a system of fax submissions of Census forms was instituted to hasten the process.

13. On June 30, 1997, the Census of Technology database was closed for analysis.

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